

## WHAT IS CLAIMED IS:

1. An AM (Amplitude Modulation) detecting apparatus comprising:
  - a coherent detection circuit for carrying out coherent detection of a desired signal in an AM signal with reference to a VCO (voltage-controlled-oscillation) signal to generate a detection signal;
  - a first comparator for comparing the detection signal with a no-signal potential;
  - control means for outputting one of a first control signal and a second control signal in a first state, and for outputting the first control signal in a second state; and
  - a phase adjusting circuit for adjusting a phase of the VCO signal in such a manner that a phase difference between the AM signal and VCO signal is set at one of first and second phase differences corresponding to the first and second control signals.
2. The AM detecting apparatus according to claim 1, wherein the first state is a state in which the amplitude of the AM signal is higher than a reference value, and the second state is a state in which the amplitude of the AM signal is lower than the reference value.
3. The AM detecting apparatus according to claim 2, wherein said control means outputs, while the amplitude of the AM signal is higher than the reference value, the first control signal when the detection signal is lower than the no-signal potential, and the second control signal when the detection signal is higher than the no-signal potential.

4. The AM detecting apparatus according to claim 3, wherein  
said control means includes a second comparator for comparing  
the detection signal with an inversion-detection threshold, and  
wherein said control means outputs, while the amplitude of the  
5 AM signal is higher than the reference value, the first control  
signal when the detection signal is lower than the no-signal  
potential or the detection signal is higher than the  
inversion-detection threshold value, and the second control  
signal when the detection signal is higher than the no-signal  
10 potential and lower than the inversion-detection threshold  
value.

5. The AM detecting apparatus according to claim 2, wherein  
said control means compares a gain control signal of an AGC circuit,  
15 which controls a gain of an amplifier for amplifying the AM signal,  
with a predetermined threshold value, and makes a decision as  
to whether the amplitude of the AM signal is higher than the  
reference value.

20 6. The AM detecting apparatus according to claim 2, wherein  
said control means makes a decision as to whether the amplitude  
of the AM signal is higher than the reference value by comparing  
a lower-side peak value of the detection signal with a  
predetermined threshold value.

25

7. The AM detecting apparatus according to claim 2, wherein  
said control means makes a decision as to whether the amplitude  
of the AM signal is higher than the reference value by comparing  
the detection signal with a predetermined threshold value.

30

8. The AM detecting apparatus according to claim 7, wherein  
said control means comprises a weak field detector including  
a voltage comparator and a capacitor, and wherein said weak field  
detector compares the detection signal with the predetermined  
5 threshold value.

9. The AM detecting apparatus according to claim 1, wherein  
said control means comprises a selecting switch for selecting  
an inversion-detection threshold value in response to an  
10 amplitude of the AM signal; and a second comparator for comparing  
the detection signal with the inversion-detection threshold  
value selected by said selecting switch, and wherein said control  
means outputs one of the first and second control signals in  
response to a comparison result of said second comparator.

15

10. The AM detecting apparatus according to claim 1, wherein  
said control means comprises a second comparator for detecting  
an upper-side peak value and a lower-side peak value of the  
detection signal, and for comparing a difference between the  
20 upper-side peak value and the no-signal potential with a  
difference between the lower-side peak value and the no-signal  
potential, and wherein said control means outputs one of the  
first and control signals in response to comparison results of  
said first and second comparators.

25